

BEST AVAILABLE COPY**REMARKS**Status of Claims

Claims 1-13 have been rejected under 35 U.S.C. §103(a). Claims 1-13 are currently pending in the present Application.

Claim Rejections – 35 U.S.C. §103(a)

Claims 1-13 have been rejected under 35 U.S.C. §103(a) as being unpatentable over Wang (U.S. Patent No. 4,238,299) (hereinafter “Wang”) in view of Baburek (EPO Publication EP 55679) (hereinafter “Baburek”). The Examiner alleges that Wang discloses a process for coating a shielding element with a boron copper layer and that Baburek discloses a method for coating a shielding element with a boron-nickel layer. The Examiner states that Wang does not expressly disclose that his method is applicable to boron nickel particles. The Examiner then concludes that it would have been obvious to one having ordinary skill in the art to apply the coating method of Wang using the materials disclosed in Baburek and that the suggestion/motivation for doing so would have been to agitate the copper boron electrolyte solution to achieve an even distribution.

To establish a prima facie case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations. *MPEP* §2143. Applicants respectfully submit that a prima facie case of obviousness does not exist with regard to the claimed invention.

Claims 1 and 13 both provide, in pertinent part, a method of producing a coating by providing “a boron-nickel coating in a dispersion bath containing boron, and during the coating process, at least from time to time, a relative movement is produced between the surface to be coated and the dispersion bath.” Neither Wang nor Baburek, alone and in combination with each other, disclose the method for coating a shielding element as claimed in Applicants’ Claims 1 and 13.

Wang discloses a method for producing shielding elements containing boron carbide particles embedded in a copper matrix. The primary use for such shields is in the fabrication of safe containers for the storage, disposal, or transportation of nuclear waste materials and other radioactive substances. (Column 1, lines 8-16). The method of Wang teaches that a tube of stainless steel is removably situated on the bottom of an electrolytic cell so as to be disposed in electrical contact with a cathode contact connected to a current source. (Column 3, lines 6-12). The cell is filled with "conventional copper electrolyte solution 24 containing copper ions" such that "[t]he entire cell 10 is filled to a level above [an] anode 12...." (Column 3, lines 16-18). The anode 12 is connected to the current source. "[B]oron carbide particles 26 are introduced through [a] funnel 14 while *agitating the electrolyte solution with the stirrers 16.*" (Column 3, lines 20-22) (emphasis added). A thin layer of copper is plated on the exposed upper surface of the tube (before or during the introduction of the boron carbide particles) to improve the bonding between the stainless steel and the layer to be built up on the tube surface. (Column 3, lines 24-27). "[T]he stirrers 16 are [then] stopped to allow the particles to settle onto the surface of the tube 18 while electroplating proceeds....," thereby trapping the boron carbide particles in the copper plate. (Column 3, lines 29-31) (emphasis added).

Baburek discloses a box for underwater storage of irradiated nuclear fuel assemblies. The box includes a coating (I) consisting of boron carbide particles embedded in a nickel binder and a continuous layer (II) of nickel which covers the coating (I). Baburek teaches forming the coating (I) with a plasma torch using boron carbide powder grains coated with nickel. To obtain the boron carbide layer, it is necessary to have a plasma atmosphere surrounding the area where the nickel-bound boron carbide particles will be fixed on the continuous layer (II).

Both Wang and Baburek fail to teach a method in which a coating is produced by moving either the surface to be coated, a bath in which the surface is immersed, or both. In particular, both Wang and Baburek fail to teach or suggest a method of producing a coating for the absorption of neutrons created in a nuclear reaction of radioactive materials in which a relative movement is produced between the surface to be coated and a dispersion bath during the coating process, as is claimed by Applicants. Applicants

respectfully disagree with the Examiner's assertion that the relative movement of the solution (of Wang) continues upon the removal of the agitation. In such a case, particles of boron carbide "settle out" of the liquid phase of the solution after the dispersion bath equilibrates and movement of the solution stops. Thus, Applicants maintain that the relative movement between the surface and the dispersion bath, as claimed (and which, in contrast to Wang, does not require on the electrolytic deposition of nickel), is patentably distinct from the "settling" of boron carbide particles as taught by Wang.

Baburek also teaches away from Applicants' invention as claimed inasmuch as the deposition of powder on a surface in a plasma environment precludes relative movement of the coating powder and the surface to be coated. The plasma environment is necessitated by the physical characteristics of the materials as taught on page 3, lines 34-36. Because of such limitations, one of ordinary skill in the art would not be inclined to combine the plasma technique of Baburek with the plating technique of Wang. Furthermore, while Applicants claim the providing of a coating from a dispersion bath containing boron (e.g., a non-carbide form of boron), both Wang and Baburek are limited to the dispersion of boron carbide particles.

Because both Wang and Baburek, alone and in combination, fail to teach or suggest what Applicants claim in their Claims 1 and 13, viz., the producing of relative movement between the surface to be coated and the dispersion bath, both Wang and Baburek fail to provide the teaching or suggestion for one of ordinary skill in the art to produce a coating by the method claimed by Applicants. Furthermore, because both Wang and Baburek fail to teach all of the claim limitations of Applicants' Claims 1 and 13, viz., the coating of a surface with something other than boron carbide (i.e., boron), both Wang and Baburek fail to teach all of the claim limitations of Applicants' Claims 1 and 13. Moreover, because Baburek states that nickel is not suited for use with the solution bath as taught by Wang, one of ordinary skill in the art would not even combine Baburek with Wang. Consequently, because both Wang and Baburek, alone and in combination, fail to teach or suggest the modification or combination of their respective teachings to produce Applicants' claimed invention, and because neither Wang nor Baburek, alone and in combination, teach all of the claim limitations of Applicants'

invention, Applicants' Claims 1 and 13 are necessarily non-obvious. Applicants, therefore, respectfully request that the rejection of Claims 1 and 13 be withdrawn.

Because Claims 2-12 depend from Claim 1, and because claims that depend from a claim that is non-obvious are themselves non-obvious, Applicants assert that Claims 2-12 are non-obvious and respectfully request that the rejection of such Claims be withdrawn.

Conclusion

Applicants believe that the foregoing remarks fully comply with the Office Action and that the Claims herein are allowable to Applicants. In view of the foregoing points that distinguish Applicants' invention from those of the prior art and render Applicants' invention not obvious, Applicants respectfully request that the Examiner reconsider the present application, withdraw the rejections, and allow the application to issue.

If the Examiner believes that a telephone conference with Applicants' attorneys would be advantageous to the disposition of this case, the Examiner is invited to telephone the undersigned.

If additional charges are incurred with respect to this Amendment, they may be charged to Deposit Account Number 06-1130 maintained by Applicants' attorneys.

Respectfully submitted,

KLAUS-LEO WILBUER ET AL.

CANTOR COLBURN LLP
Applicants' Attorneys

By: 

Wayne R. Grenis

Reg. No.: 48,945

DATE:	June 20, 2002
ADDRESS:	55 Griffin Road South, Bloomfield, CT 06002
TELEPHONE	(860) 286-2929